

**ABSTRACT OF THE DISCLOSURE**

One or more techniques are provided for determining the overall motion of an organ of interest relative to a viewer or imager. Motion data is acquired for the organ of interest and/or for one or more proximate organs using sensor-based and/or image data-based techniques. The sensor-based techniques may include electrical and non-electrical techniques. The image data-based techniques may include both pre-acquisition and acquisition image data. The motion data for the organ of interest and proximate organs may be used to determine one or more quiescent periods corresponding to intervals of minimal motion for the organ of interest and the proximate organs. The one or more quiescent periods may be used to determine one or more gating points that may be used prospectively, i.e., during image acquisition. In addition, the one or more quiescent periods may be used to determine one or more motion compensation factors that may be used during processing and reconstruction of the acquired image data. The gating points and motion compensation factors may be used, separately or together, to reduce motion-related artifacts in the reconstructed images.